

# (12) UK Patent Application (19) GB (11) 2 393 954 (13) A

(43) Date of A Publication 14.04.2004

(21) Application No: 0217313.8

(22) Date of Filing: 25.07.2002

(30) Priority Data:

(31) 090212707 (32) 26.07.2001 (33) TW

(71) Applicant(s):

Ted Lin  
No 6, Lane 41, Minchiuan Street,  
Tajshan Shiang, Taipei, Taiwan 243,  
Taiwan

(72) Inventor(s):

Ted Lin

(74) Agent and/or Address for Service:

Riddle & Grose  
16 Theobalds Road, LONDON, WC1X 8PL,  
United Kingdom

(51) INT CL<sup>7</sup>:  
B65D 51/24

(52) UK CL (Edition W):  
B8T TWB

(56) Documents Cited:

US 5625347 A US 5439103 A  
US 20020000908 A1

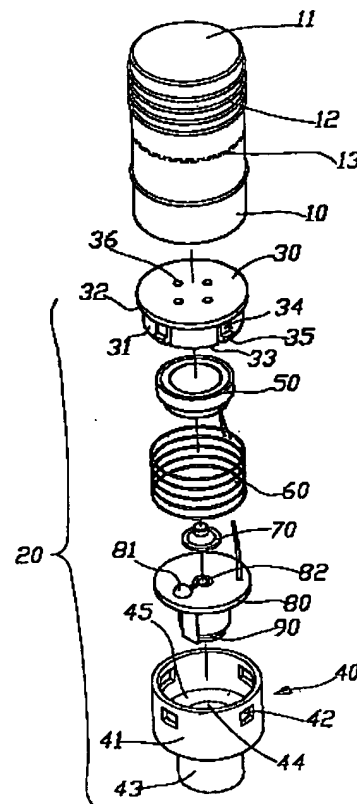
(58) Field of Search:

UK CL (Edition V) B8T TWB  
INT CL<sup>7</sup> B65D 51/24

Other: ONLINE: EPODOC, JAPIO, WPI, TXTGB1,  
TXTEP1, TXTWO1, TXTUS0, TXTUS1, TXTUS2,  
TXTUS3

(54) Abstract Title: Container cap that generates an audio output upon opening

(57) A vocal container cap includes a cap portion (10) and a vocal assembly (20) received in the cap portion (10). When the cap portion (10) is fully closed onto a container mouth, an elastic switch 70 associated with a movable member (30) of the vocal assembly (20) is pressed against a contact on a circuit board 80 supported on a fixed member (40) of the vocal assembly (20) to disable the vocal container cap. When the cap portion (10) is twisted to loosen from the container mouth, a spring 60 lifts the movable member (30) to separate the elastic switch 70 from the contact and thereby actuates the vocal container cap to sound or voice. The vocal assembly 20 also comprises a mini speaker 50 and batteries 90, and the cap portion 10 includes a screw thread 12 for attaching to a neck (fig 2, 101) of a bottle and a weakened section 13, which breaks upon removal of the cap.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

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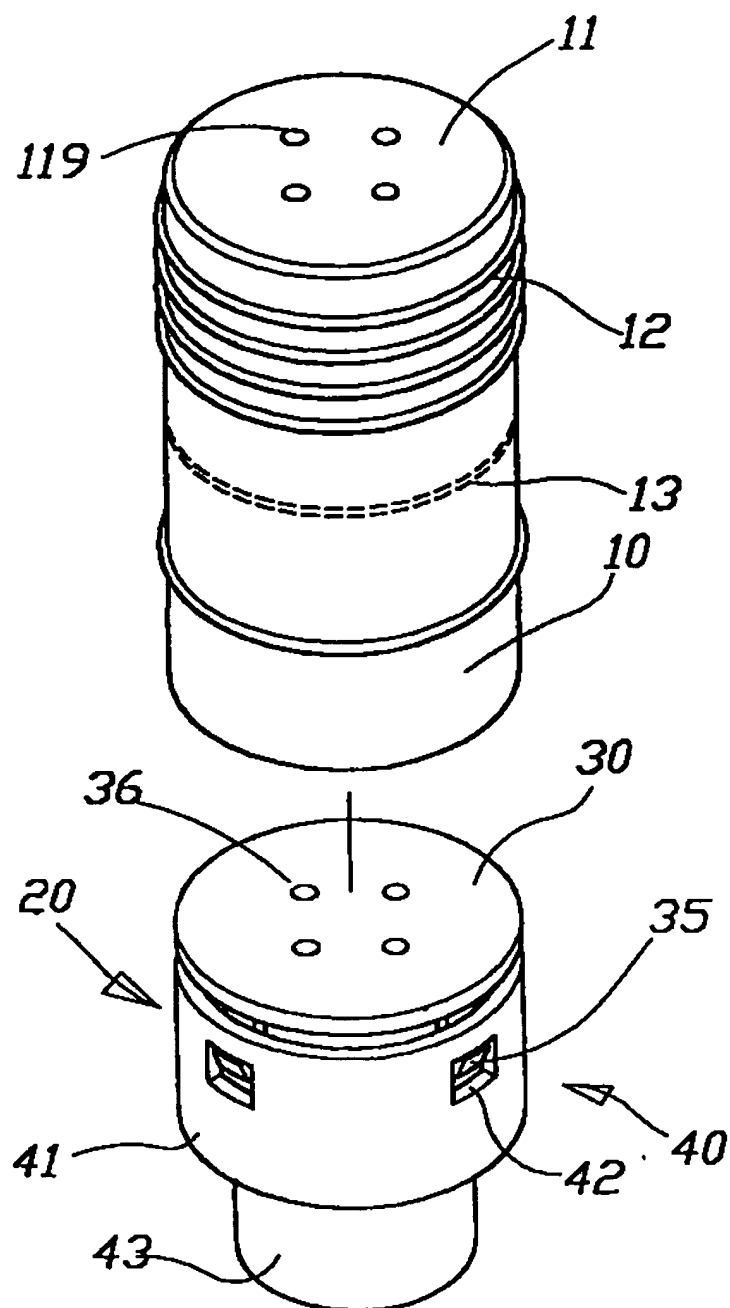


FIG.1



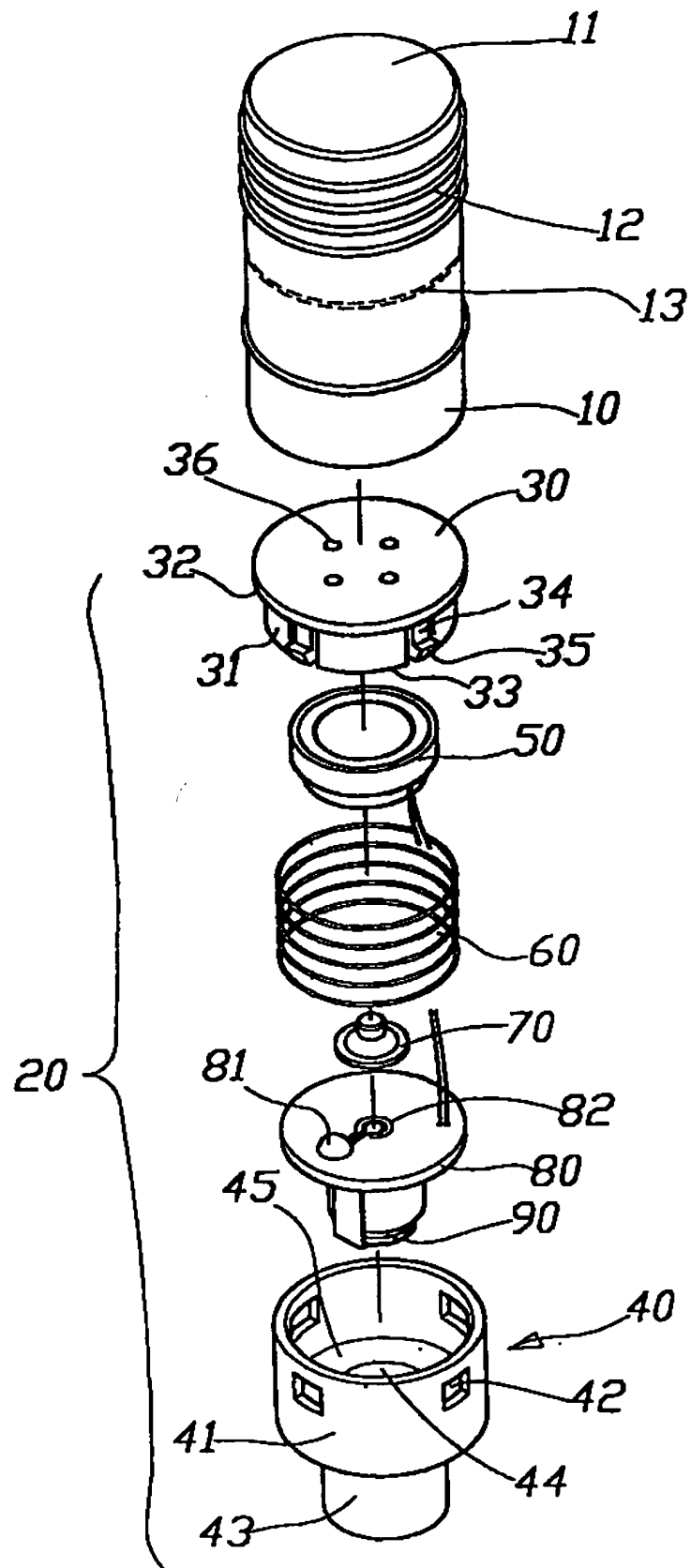
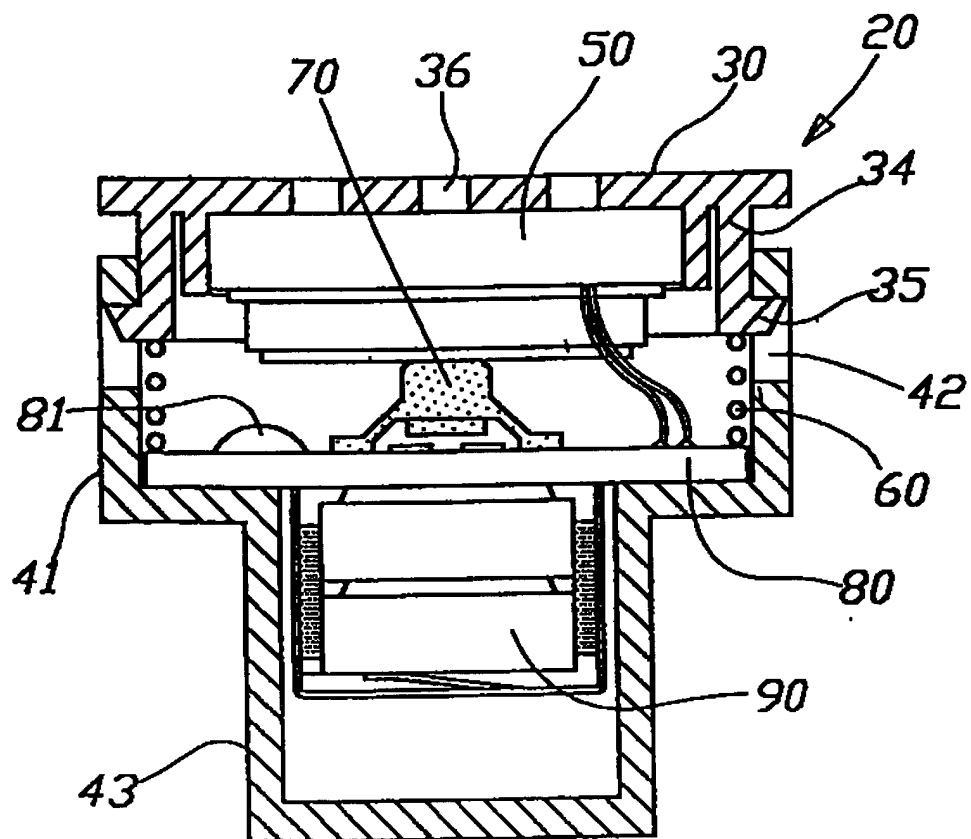


FIG.3



**FIG.4**

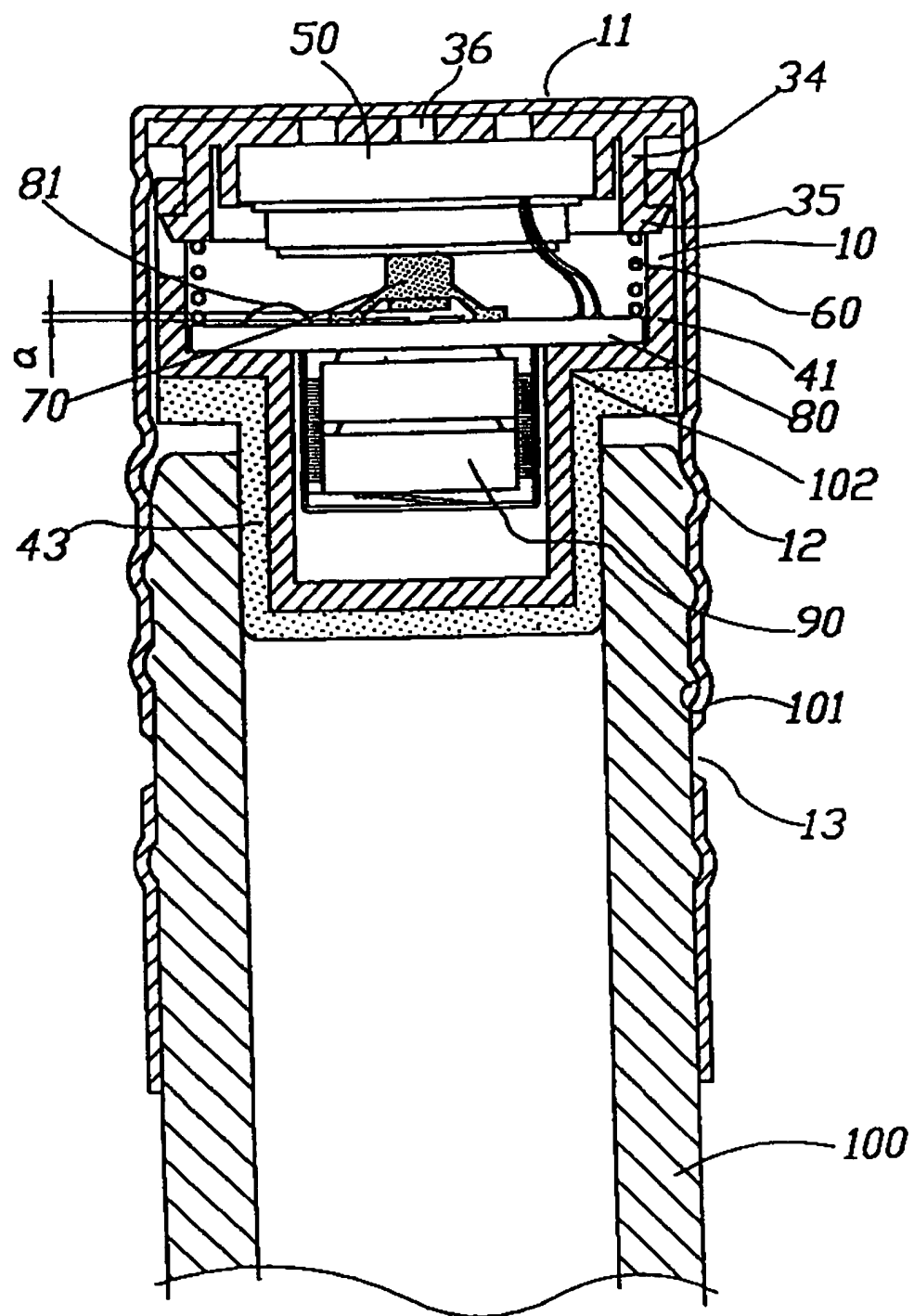


FIG.5

## VOCAL CONTAINER CAP

## BACKGROUND OF THE INVENTION

5 The present invention relates to a vocal container cap,  
and more particularly to a container cap that sounds  
or voices when it is loosened from a container mouth.

People frequently send cards or gifts to families and  
10 friends on special dates, such as Christmas, New Year,  
birthdays, etc., and greetings and congratulations are  
usually directly written on the cards.

In recent years, there are developed musical cards that  
15 give out a piece of music or voice of a sender when  
they are opened. In either case, the card sounds  
because an isolated thin strip internally attached to  
a folding line of the card is pulled when the card is  
opened. However, cards and gifts are only two of many  
20 ways for showing greetings and congratulations.  
Bottled good wines, such as champagne, are often adopted  
as presents for friends at special dates, too. It is  
a pity that a vocal mechanism similar to that employed  
for the musical cards is not applicable on bottled  
25 products.

## SUMMARY OF THE INVENTION

It is therefore a primary object of the present invention to provide a vocal container cap that does not sound or voice when being fully closed on a container mouth, and gives out a piece of preset music, sound or voice  
5 when being loosened from the container mouth.

To achieve the above and other objects, the vocal container cap of the present invention mainly includes a hollow cap portion having a predetermined length and  
10 a vocal assembly received in the cap portion. The vocal assembly includes a movable member normally pushed upward against the cap portion by a spring, and a fixed member below the movable member to support a circuit board and batteries thereon. The fixed member also  
15 serves to internally seal the container mouth. When the cap portion is in a first position in which it is fully closed onto the container mouth, an elastic switch associated with the movable member of the vocal assembly is downward pressed against a contact on the circuit  
20 board supported on the fixed member of the vocal assembly to disable the vocal container cap. And when the cap portion is twisted to loosen from the container mouth and moves into a second position, the spring lifts the movable member to separate the elastic switch from the  
25 contact and thereby actuates the vocal container cap to sound or voice.

#### BRIEF DESCRIPTION OF THE DRAWINGS

.: .: .: .: .:



The structure and the technical means adopted by the present invention to achieve the above and other objects can be best understood by referring to the following  
5 detailed description of the preferred embodiments and the accompanying drawings, wherein

Fig. 1 is a partially exploded perspective view of a vocal container cap according to a preferred embodiment  
10 of the present invention;

Fig. 2 is an assembled sectional view of the vocal container cap of the present invention fully closed onto a container mouth, wherein a vocal assembly thereof  
15 is disabled;

Fig. 3 is a fully exploded perspective view of the vocal container cap of the present invention;

20 Fig. 4 is an assembled sectional view of the vocal assembly of the vocal container cap of the present invention; and

Fig. 5 is another assembled sectional view of the vocal  
25 container cap of the present invention, wherein the cap has been twisted apart to loosely close onto the container mouth and the vocal assembly thereof is actuated.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please refer to Fig. 1 that is a partially exploded perspective view of a vocal container cap according to a preferred embodiment of the present invention. The vocal container cap includes a hollow cap portion 10 made of a sheet metal material and having a predetermined length to define a solid top 11 and an open bottom, and a vocal assembly 20 fitted in the hollow cap portion 10. Usually, the cap portion 10 is provided at a distance below the solid top 11 with a threaded section 12 for engaging with external screw threads provided around a container mouth. And, for a large part of the cap portion 10 to separate from the container mouth easily when the cap portion 10 is twisted relative to the container mouth, a circle of weakened section 13 is provided slightly below the threaded section 12.

Please refer to Figs. 1 to 3 at the same time. The vocal assembly 20 includes a movable member 30, a fixed member 40 with which the movable member 30 is movably associated, and a mini speaker 50, a spring 60, an elastic switch 70, a circuit board 80, and batteries 90 sequentially mounted between the movable and the fixed members 30, 40 from top to bottom.

The fixed member 40 includes a large-diameter hollow

ring portion 41 and a small-diameter hollow plunger portion 43 downward extended from a bottom of the ring portion 41 to define a reduced bore 44, such that a stepped surface 45 is formed in the fixed member 40  
5 between the ring portion 41 and the plunger portion 43. The ring portion 41 is provided along a peripheral wall at a predetermined height with multiple spaced windows 42. The plunger portion 43 is dimensioned for internally sealing the container mouth.

10

The circuit board 80 is supported on the stepped surface 45 in the hollow ring portion 41 and has required circuits and related electronic components provided thereon. The batteries 90 are connected to a bottom of the circuit  
15 board 80 and located in the reduced bore 44. The electronic components on the circuit board 80 include an IC 81 and a contact 82. The elastic switch 70 located above the circuit board 80 is electrically connected at an internal conductive rubber pad to the contact  
20 82 to control electrical connection of circuits on the circuit board 80. Since circuits for driving a music IC via a push switch is known in the art, it is not discussed in details herein. In the illustrated embodiment, the electrically conductive rubber pad in  
25 the elastic switch 70 normally contacts with the contact 82. And, when the elastic switch 70 is moved upward, one contact control is formed to actuate the IC 81 for the vocal container cap to sound for a predetermined

period of time. There are also other feasible ways for the cap to sound. For example, another switch button may be provided below the elastic switch 70 to drive the related circuits. In the illustrated embodiment,  
5 the elastic switch 70 is normally in a first position that disables the vocal container cap, and moves into a second position when the cap portion 10 is turned open and thereby actuates the vocal container cap.

10 The movable member 30 includes a diameter-reduced peripheral wall portion 31 downward extended from a top of the movable member 30 by a predetermined distance, such that a shoulder portion 32 is formed between the top of the movable member 30 and the reduced peripheral  
15 wall portion 31, and a bottom of the reduced peripheral wall portion 31 defines a lower periphery edge 33 of the movable member 30. The mini speaker 50 is received in a space defined in the reduced peripheral wall portion 31 and connected to the circuit board 80 via wires.  
20 The reduced peripheral wall portion 31 is located in the ring portion 41 of the fixed member 40, and includes a plurality of spaced tongues 34 suspended from an underside of the shoulder portion 32 corresponding to the windows 42 on the ring portion 41 of the fixed member  
25 40. Each of the suspended tongues 34 includes a hook 35 outward extended from a lower end thereof to project into the window 42 and thereby holds the movable member 30 to the fixed member 40. The cap portion 10 and the

movable member 30 are provided on their tops with a plurality of through holes 119 and 36, respectively, to facilitate transmission of voice or sound from the mini speaker 50 in the reduced peripheral wall portion  
5 31.

The spring 60 is located between the lower periphery edge 33 of the movable member 30 and the circuit board 80 to normally push the movable member 30 upward against  
10 the cap portion 10 for the hooks 35 of the suspended tongues 34 to press against an upper edge of the windows 42 on the fixed member 40 while the mini speaker 50 presses a bottom thereof against an upper end of the elastic switch 70, as shown in Fig. 4.

15

Please refer to Fig. 2 again. When the cap portion 10 with the vocal assembly 20 received therein is fully closed onto a mouth 102 of a container 100, such as a wine bottle, the threaded section 12 of the cap portion  
20 10 is screwed to an external threaded section 101 outside the mouth 102, the plunger portion 43 of the fixed member 40 is firmly pressed against the mouth 102, the hooks 35 of the movable member 30 are lowered from the upper edges of the windows 42 by a small distance  $a$ , the elastic  
25 switch 70 is in a lowered position to touch the contact 82, and the spring 60 is in a compressed state. This fully closed state of the cap portion 10 is defined as a first position of the vocal container cap of the

present invention in which the vocal container cap is disabled.

When the cap portion 10 is twisted relative to the mouth  
5 102 of the container 100, it is broken at the weakened  
section 13 and allowed to move upward. At this point,  
a restoring force of the compressed spring 60 lifts  
the movable member 30 to separate the elastic switch  
70 from the contact 82 and complete one push of the  
10 elastic switch 70. As a result, a piece of music or  
voice greetings or congratulations are sounded for a  
predetermined period of time under control of the IC  
81.

15 With the sound or voice given out of the vocal container  
cap when the latter is loosened from the mouth of the  
container, the otherwise monotonous movement of opening  
a bottle becomes interesting and joyful.

What is claimed is:

1. A vocal container cap comprising a hollow cap portion  
having a predetermined length to define a solid top  
5 and an open bottom, and a vocal assembly fitted in  
said hollow cap portion;

said cap portion being provided at a distance below  
said solid top with a threaded section for engaging  
10 with external screw threads provided around a  
container mouth, and below said threaded section with  
a circle of weakened section for easily breaking said  
cap portion thereat when said cap portion is twisted  
relative to said container mouth; and

15 said vocal assembly including a fixed member, a  
movable member located above and associated with  
said fixed member, and a mini speaker, an elastic  
switch, a circuit board, and batteries sequentially  
20 mounted between said movable and said fixed members  
from top to bottom, and a spring located between said  
movable member and said circuit board;

said fixed member including a hollow ring portion  
25 having a plurality of windows spaced along a  
peripheral wall thereof, and a hollow plunger portion  
downward extended from a bottom of said ring portion  
for inserting into and sealing said container mouth;

and

said movable member including a diameter-reduced  
peripheral wall portion adapted to locate in said  
5 hollow ring portion of said fixed member and provided  
with a plurality of suspended tongues corresponding  
to said windows on said fixed member, such that a  
hook at a lower end of each said tongue outward  
projects into one said window and is normally pressed  
10 by said spring against an upper edge of said window;

said cap portion with said vocal assembly received  
therein and fully closed onto said container mouth  
being located at a first position in which said spring  
15 between said mini speaker and said circuit board is  
compressed, said hooks of said movable member are  
lowered from said upper edges of said windows on said  
fixed member by a predetermined distance, and said  
vocal container cap is disabled; and

20

said cap portion with said vocal assembly received  
therein and broken at said weakened section to loosen  
from said container mouth being located at a second  
position in which said spring lifts said movable  
25 member to actuate said vocal container cap.

2. The vocal container cap as claimed in claim 1, wherein  
said spring is located between a lower periphery edge



of said reduced peripheral wall portion and said circuit board.

3. The vocal container cap as claimed in claim 1, wherein  
5 said mini speaker is located in said diameter-reduced peripheral wall portion of said movable member with a bottom of said mini speaker pressed against an upper end of said elastic switch, and said elastic switch having a lower end facing toward a contact provided  
10 on said circuit board.



INVESTOR IN PEOPLE

Application No: GB 0217313.6  
Claims searched: 1-3

Examiner: Darren Williams  
Date of search: 9 January 2003

## Patents Act 1977 : Search Report under Section 17

### Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
A	-	US 5625347 (MACLEAN)
A	-	US 2002/0000908 (BURG) A1
A	-	US 5439103 (HOWES)

### Categories:

X Document indicating lack of novelty or inventive step	A Document indicating technological background and/or state of the art.
Y Document indicating lack of inventive step if combined with one or more other documents of same category	P Document published on or after the declared priority date but before the filing date of this invention.
& Member of the same patent family	B Patent document published on or after, but with priority date earlier than, the filing date of this application.

### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>v</sup>:

B8T

Worldwide search of patent documents classified in the following areas of the IPC<sup>7</sup>:

B65D

The following online and other databases have been used in the preparation of this search report:

EPODOC, JAPIO, WPI, TXTGB1, TXTEP1, TXTWO1, TXTUS0, TXTUS1, TXTUS2, TXTUS3